

+

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.

35.G2512

First Named Inventor or Application Identifier

RYO FUJIMOTO

Express Mail Label No.

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO:

Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

☐ Fee Transmittal Form
(Submit an original, and a duplicate for fee processing)

2. ☒ Specification Total Pages

3. ☒ Drawing(s) (35 USC 113) Total Sheets

4. ☒ Oath or Declaration Total Pages

- a. ☐ Newly executed (original or copy)
b. ☒ Unexecuted for information purposes
c. ☐ Copy from a prior application (37 CFR 1.63(d))
(for continuation/divisional with Box 17 completed)
[Note Box 5 below]

i. ☐ **DELETION OF INVENTOR(S)**
Signed Statement attached deleting inventor(s)
named in the prior application, see 37 CFR
1.63(d)(2) and 1.33(b).

5. ☐ Incorporation By Reference (useable if Box 4c is checked)
The entire disclosure of the prior application, from which a copy of the
oath or declaration is supplied under Box 4c, is considered as being
part of the disclosure of the accompanying application and is hereby
incorporated by reference therein.

6. ☐ Microfiche Computer Program (Appendix)

7. Nucleotide and/or Amino Acid Sequence Submission
(if applicable, all necessary)

- a. ☐ Computer Readable Copy
b. ☐ Paper Copy (identical to computer copy)
c. ☐ Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

8. ☐ Assignment Papers (cover sheet & document(s))
9. ☐ 37 CFR 3.73(b) Statement ☐ Power of Attorney
(when there is an assignee)
10. ☐ English Translation Document (if applicable)
11. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
12. ☐ Preliminary Amendment
13. ☒ Return Receipt Postcard (MPEP 503)
(Should be specifically itemized)
14. ☐ Small Entity Statement(s) ☐ Statement filed in prior application
Status still proper and desired
15. ☐ Certified Copy of Priority Document(s)
(if foreign priority is claimed)
16. ☐ Other: _____

17. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No. ____/____

18. CORRESPONDENCE ADDRESS

☒ Customer Number or Bar Code Label

05514
(Insert Customer No. or Attach bar code label here)

or ☐ Correspondence address below

NAME

Address

City

State

Zip Code

Country

Telephone

Fax



CLAIMS	(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) CALCULATIONS
	TOTAL CLAIMS (37 CFR 1.16(c))	51-20 =	31	X \$ 18.00 =	\$918.00
	INDEPENDENT CLAIMS (37 cfr 1.16(b))	6-3 =	3	X \$ 78.00 =	\$234.00
	MULTIPLE DEPENDENT CLAIMS (if applicable) (37 CFR 1.16(d))			\$260.00 =	\$ 0.00
				BASIC FEE (37 CFR 1.16(a))	\$760.00
	Total of above Calculations =				\$1,912.00
	Reduction by 50% for filing by small entity (Note 37 CFR 1.9, 1.27, 1.28).				
	TOTAL =				\$1,912.00

19. Small entity status

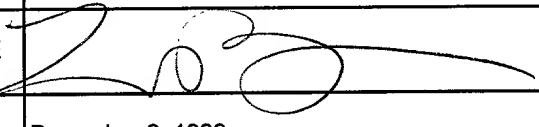
- a. ☐ A Small entity statement is enclosed
- b. ☐ A small entity statement was filed in the prior nonprovisional application and such status is still proper and desired.
- c. ☐ Is no longer claimed.

20. ☒ A check in the amount of \$ 1,912.00 to cover the filing fee is enclosed.

21. ☐ A check in the amount of \$ _____ to cover the recordal fee is enclosed.

22. The Commissioner is hereby authorized to credit overpayments or charge the following fees to Deposit Account No. 06-1205:

- a. ☒ Fees required under 37 CFR 1.16.
- b. ☒ Fees required under 37 CFR 1.17.
- c. ☐ Fees required under 37 CFR 1.18.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED	
NAME	Leonard P. Diana (Reg. No. 29,296)
SIGNATURE	
DATE	December 9, 1999

TITLE OF THE INVENTION

IMAGE MANAGING APPARATUS AND METHOD, IMAGE RETRIEVING
APPARATUS AND METHOD, AND STORAGE MEDIUM

5

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to an image managing
10 apparatus for retrievably managing images stored in memory
means, an image retrieving apparatus for retrieving an image
stored in an image memory, an image managing method, an
image retrieving method, and a storage medium.

Description of the Related Art

15 According to an image managing method for retrievably
managing images stored in memory means, information serving
as keywords are appended one after another to images. The
images are managed in association with the appended
information. For retrieving a thus managed image, a keyword
20 equivalent to information with which the image is managed is
input. Candidate images are then retrieved based on the
interaction of the input keyword with information with which
the image is managed.

However, according to the foregoing image managing
25 method, images are managed in association with information

appended one after another to the images. A keyword to be
input for retrieving an image is an equivalent of
information appended to the image. Therefore, a high
retrieving ability cannot be achieved. Candidate images not
5 including a desired image or candidate images not needed at
all may be extracted as a result of retrieval. The
retrieving ability is therefore low.

An object of the present invention is to provide an
image managing apparatus, an image managing method, and a
10 storage medium offering an improved retrieving ability.

Another object of the present invention is to provide
an image managing apparatus, an image managing method, and a
storage medium enabling easy input of information with which
an image is managed.

15 Still another object of the present invention is to
provide an image retrieving apparatus, an image retrieving
method, and a storage medium enabling easy input of
retrieval information with which an image is retrieved.

20 SUMMARY OF THE INVENTION

According to one aspect of the present invention, there
is provided an image managing apparatus for managing
retrievable images. The image managing apparatus includes
input means for inputting relevant information concerning an
25 object within an image, and memory means in which relevant

information input by the input means is stored in association with objects.

BRIEF DESCRIPTION OF THE DRAWINGS

5 Fig. 1 is a block diagram showing the configuration of an embodiment of an image managing apparatus in accordance with the present invention;

10 Fig. 2A to Fig. 2E show the structure of an object unit employed in managing an image by the image managing apparatus shown in Fig. 1;

 Fig. 3 shows an example of images managed by the image managing apparatus shown in Fig. 1;

 Fig. 4 shows an example of descriptions of the image shown in Fig. 3 to be specified in an object unit;

15 Fig. 5 shows the structure of supplementary information employed in managing an image by the image managing apparatus shown in Fig. 1;

20 Fig. 6 is a flowchart describing a procedure of inputting object unit information to be used by the image managing apparatus shown in Fig. 1;

 Fig. 7 is a flowchart describing a procedure of inputting relationship unit information to be used by the image managing apparatus shown in Fig. 1; and

25 Fig. 8 is a flowchart describing a retrieval process of the image managing apparatus shown in Fig. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

An embodiment of the present invention will be described below with reference to the drawings.

5 Fig. 1 is a block diagram showing the configuration of an embodiment of an image managing apparatus in accordance with the present invention.

10 An image managing apparatus has, as shown in Fig. 1, a CPU 11. The CPU 11 runs processes for, for example, image management and image retrieval according to a program stored in a ROM 12. A RAM 13 is used to provide a work area for the CPU 11.

15 A keyboard 15, a mouse 16, a display 17 capable of displaying images in colors, and a hard disk drive (HD) 14 are connected to the ROM 12, the RAM 13, and the CPU 11 by a bus 18. The CPU 11 controls these blocks. The keyboard 15 includes various kinds of keys used to designate various kinds of environments for data input accompanying each processing, processing, or operations. The mouse 16 is used
20 to instruct the data input accompanying each processing, processing, or operations. The display 17 displays an image contained in an image file stored in the hard disk drive 14, a window assigned to each processing, or the like.

25 The image file and image management information used to manage images contained in the image file are stored in the

hard disk drive 14. The images and image management information are managed while being mutually associated. The image management information consists of information specified in object units describing objects contained in each image and supplementary information of the image.

Next, the object unit will be described with reference to Fig. 2A to Fig. 2E. Fig. 2A to Fig. 2E show the structure of the object unit employed in managing an image by the image managing apparatus shown in Fig. 1.

10 An object unit 20 describing an object contained in an image consists of, as shown in Fig. 2A, a place division 22, an attribute pointer division 24, an object name division 26, a proper noun division 28, and a unit pointer division 30. The position of the object in a screen is specified in the place division 22. A pointer indicating a qualification unit is specified in the attribute pointer division 24. A general name is specified in the object name division 26. A proper noun is specified in the proper noun division 28. Pointers indicating other object units are specified in the unit pointer division 30.

Fig. 2B schematically shows a qualification unit 32. The pointer indicating a qualification unit indicates a position at which the qualification unit resides. Qualifiers appended to the object are specified in the qualification unit. The qualification unit is structured so

that a plurality of qualifiers can be specified therein and one object can thus be qualified with a plurality of qualifiers.

The pointers indicating other objects indicate other
5 object units to be linked. The other object units include, as shown in Fig. 2C, an internal relationship unit 34 in which an object included in an object (for example, an object of a face included in an object of a human being) is specified. The internal relationship unit represents an
10 internal relationship between objects. The other object units also include, as shown in Fig. 2D, a state unit 36 for expressing the state of an object. For example, when it is necessary to express the state of an object of a human being, that is, a "standing" state, a state unit expressing the
15 "standing" state is linked to the object unit describing the human being.

The other object units also include, as shown in Fig. 2E, a relationship unit 38 for expressing the relationship of an object to another object. For example, an object of a
20 human being and an object of a motorcar have the relationship that the human being is riding in the motorcar. The relationship unit 38 expresses the relationship that the human being is riding. The relationship unit 38 is linked to two object units and specifies one verb. A plurality of
25 relationship units is permitted. For example, for

expressing the relationship that the human being is riding in the motorcar and driving it, relationship units having "riding" and "driving" specified therein respectively are linked to the object unit describing the human being.

5 Supplementary information of an image includes imaging-related data, special object data, category data, impression data, time data, place data, weather data, and event data. The supplementary information will be detailed later.

10 Next, an example of descriptions specified in an object unit will be described with reference to Fig. 3 and Fig. 4. Fig. 3 shows an example of images managed by the image managing apparatus shown in Fig. 1. Fig. 4 shows an example of descriptions specified in an object unit assigned to the image shown in Fig. 3.

15 The image shown in Fig. 3 shows a man standing on the left surprised at a cat eating a mouse on a round table on the right. In the image, the cat is regarded as a first object, the mouse is regarded as a second object, the table is regarded as a third object, and the man is regarded as a fourth object. As shown in Fig. 4, an object unit in which "middle right" is specified as a position, "fat" is specified as a qualifier, "cat" is specified as a general name, and "Mike" is specified as a proper noun is assigned to the first object (cat). An object unit in which "middle right" is specified as a position and "mouse" is specified

25

as a general name is assigned to the second object (mouse).
However, no description of a qualifier and a proper noun are
specified in the object unit. An object unit in which
"lower right" is specified as a position, "round" is

5 specified as a qualifier, and "table" is specified as a
general name is assigned to the third object (table).

However, no description of a proper noun is specified in the
object unit. An object unit in which "left" is specified as
a position, "tall" and "male" are specified as qualifiers,

10 "human being" is specified as a general name, and "Ryoichi
Kosugi" is specified as a proper noun is assigned to the
fourth object (man). An internal relationship unit and a
state unit are linked to the object unit describing the
fourth object. The internal relationship unit is a unit
15 describing an object of a face included in the fourth object,
wherein "upper left" is specified as a position, "surprised"
is specified as a qualifier, and "face" is specified as a
general name. No description of a proper noun is specified
in the internal relationship unit. The state of the fourth
20 object, that is, "standing" is specified in the state unit.
Moreover, a relationship unit expressing the relationship
between the first object and the fourth object links the
first and fourth objects. A verb "eating" expressing that
the cat is eating the mouse is specified in the relationship
25 unit. Moreover, a relationship unit expressing the

relationship between the first object and the third object links the first and third objects. A verb "lying" expressing that the cat is lying on the table is specified in the relationship unit.

5 Owing to the descriptions, unlike when words serving as keywords are merely enumerated as they are conventionally, it is possible to clarify what objects an image consists of and how the image is composed.

10 Next, supplementary information of an image will be described with reference to Fig. 5. Fig. 5 shows the structure of supplementary information employed in managing an image by the image managing apparatus shown in Fig. 1. The supplementary information of an image is, as shown in Fig. 5, managed in association with the image together with
15 the foregoing descriptions of objects, that is, the object units (including units linked to the units). The supplementary information includes imaging-related data, special object data, category data, impression data, time data, place data, weather data, and event data.

20 In the imaging-related data, an imaging person, a year/month/day/time of imaging, a place of imaging, imaging equipment, and the state of light for imaging (forward light or back light) can be specified. For example, when an image is a photograph of a human figure, the human figure can be
25 described in an object unit but a person taking the

photograph, or imaging person, cannot be described. However, the imaging person can be specified in the imaging-related data. Consequently, the imaging person and the imaged human figure can be used as keywords to retrieve the image. The
5 retrieval using the keywords permits reliable extraction of candidate images from a narrow range of images.

In the special object data, an art object, a commodity, a frame (pattern), a three-dimensional image, a computer graphic (CG), an illustration, a test, and a logo can be
10 specified. The art object includes a painting and is detailed with the field of a work, the title of the work, a producer's name, and a year/month/day of production. The commodity is detailed with a general name, a product name, and a date of sale. The frame includes a picture frame
15 enclosing a photograph. The illustration is detailed with an illustrator's name and the title of an illustration. For example, when the special object data is appended to an image that is a painting, the painting can be retrieved using the painter and objects appearing in the painting as
20 keywords. Candidate images can be reliably extracted from a narrow range.

The category data represents the category of an image such as a landscape image, a figure image, or a vehicle image. The impression data represents an impression on an
25 image. For example, such an impression as "flamboyant,"

"sober," or "bright" is specified. The time data represents a season and a time of day. If a year/month/day of imaging is specified in the imaging-related data, the time data may be thought to be unnecessary. However, in many cases, it is impossible to enter a year/month/day of imaging accurately for retrieval. If a season or the like is specified, it often works effectively during retrieval. The place data represents a place expressed in an image. The weather data represents weather such as raining or snowing. The event data represents a celebration or memorial service such as a festival for children of three, five, and seven years of age or a wedding.

Owing to the foregoing supplementary information, information that cannot be expressed using the object unit can be associated with an image. When a query indicating information corresponding to information specified in an object unit and information corresponding to supplementary information is designated for retrieval, candidate images can be extracted very precisely.

For example, assume that the image shown in Fig. 3 is a painting produced by a painter Mr. M. For retrieving the image, a retriever designates a query indicating a painting produced by painter Mr. M and depicting that a man standing on the left is surprised at a cat. Candidate images including the image shown in Fig. 3 are then extracted. If

object units alone were described, other images meeting the requirement that a man standing left is surprised at a cat would be extracted. If numerous images meeting the requirement are stored, the number of candidate images to be
5 extracted would be so large that it would take a great deal of time to select an intended image from among the numerous candidate images. In contrast, when "painting" and "producer M" are appended as supplementary information of an image together with the object units to the image, the
10 number of candidate images including the image shown in Fig. 3 is small. The image shown in Fig. 3 can therefore be extracted very precisely. Namely, a high retrieving ability can be achieved.

As mentioned above, in the present embodiment, each
15 image is managed in such a manner that image management information consisting of information specified in object units, which describe objects appearing in an image, and supplementary information are associated with the image. Retrieval can therefore be achieved using a query indicating
20 the information specified in the object units, which describe the objects in the image, and the supplementary information. Candidate images can therefore be extracted very precisely. Namely, a retrieving ability can be improved.

25 Next, an object unit information input procedure for

inputting information to be specified in an object unit will be described with reference to Fig. 6. Fig. 6 is a flowchart describing a procedure for inputting object unit information to be used by the image managing apparatus shown in Fig. 1.

In the object unit information input, as described in Fig. 6, first, at step S101, an image for which management information is input is selected and displayed on the display 17. Control is then passed to step S102. Control waits until a position in the displayed image area is designated using the keyboard 15 or the mouse 16. When a position in the image area is designated, control is passed to step S103. It is judged from position information of the designated position whether an object is present. If no object is present at the designated position, control is passed to step S107. An error is indicated. Control is then returned to the step S102 and waits until a position in an image area is designated.

If an object is present at the designated position, control is passed to step S104. An input window is displayed at the designated position within the image area. The input window may be structured as an entry form having items shown as in Fig. 2A written therein. In this case, the input window consists of divisions in which the position of an object in a screen, a pointer indicating a

qualification unit, a general name, a proper noun, and pointers indicating other object units are specified respectively. Information concerning a position may be input using the keyboard 15 or the mouse 16. Alternatively, position information representing an object located at the position may be automatically input based on the position information of the designated position.

For inputting information to be specified in a qualification unit, the qualification unit is designated using the keyboard 15 or the mouse 16. An input window used to input information to be specified in the qualification unit, that is, qualifiers, is then displayed. Qualifiers are entered in the input window. The qualification unit having the qualifiers specified therein is automatically associated with the object. A general name and a proper noun are entered in the input window used to input information to be specified in the object unit. Other object units include the internal relationship unit shown in Fig. 2C, the state unit shown in Fig. 2D, and the relationship unit shown in Fig. 2E. A window used to select any of the units in which information to be input is specified is displayed. Any of the internal relationship unit, the state unit, and the relationship unit in which information to be input is specified is selected in the window, and then information is input. Input of information

to be specified in the relationship unit will be described later.

Thereafter, control is passed to step S105. It is judged whether input of information to be specified in the items of the displayed input window has been completed. If input has been completed, control is passed to step S106. The input information is stored in association with the displayed image in the hard disk drive 14. This procedure is then terminated.

10 Next, input of information to be specified in the relationship unit will be described with reference to Fig. 7. Fig. 7 is a flowchart describing the input of relationship unit information to be used by the image managing apparatus shown in Fig. 1.

15 Assume that input of information to be specified in the relationship unit is selected at step S104 in Fig. 6. As described in Fig. 7, first, at step S201, control waits until the position of a relational source object in a displayed image is designated. If the position of the relational source object is designated, control is passed to step S202. It is then judged whether the relational source object is present at the designated position. If no relational source object is present at the designated position, control is passed to step S208. An error is then indicated, and control is returned to step S201.

20

25

If the relational source object is present at the designated position, control is passed to step S203. Control then waits until the position of a relational destination object relative to the relational source object is designated. If the position of the relational destination object is designated, control is passed to step S204. It is then judged whether the relational destination object is present at the designated position. If no relational destination object is present at the designated position, control is passed to step S208. An error is indicated, and control is returned to step S201.

If the relational destination object is present at the designated position, control is passed to step S205. A relationship unit input window is displayed. Herein, the example shown in Fig. 3 is taken for instance. Assume that the cat is regarded as a relational source and the table is regarded as a relational destination. For inputting information to be specified in the relationship unit, the table is designated as an object serving as the relational destination of the cat. The information "lying" is input in order to express the relationship between the object of the cat and the object of the table.

Control is then passed to step S206. It is then judged whether input has been completed. If input has been completed, control is passed to step S207. Input

information specified in the relationship unit is stored in the hard disk unit 14. For example, the information "lying" links, as shown in Fig. 4, the object of the cat and the object of the table. This procedure is then exited.

5 Control is then returned to the step S104 in Fig. 6.

Next, a retrieval procedure run by the image managing apparatus will be described with reference to Fig. 8. Fig. 8 is a flowchart describing a retrieval procedure performed by the image managing apparatus shown in Fig. 1.

10 A retrieval procedure is run for retrieving an image stored in the hard disk drive 14. As described in Fig. 8, first, at step S301, a virtual window virtually defining an image area is displayed on the display 17. Control is then passed to step S302 and waits until a position in the
15 virtual window is designated. If a position in the virtual window is designated, control is passed to step S303. A retrieval-related query input window is displayed. The retrieval-related query input window is realized with a window having the same structure as the object unit shown in
20 Fig. 2. The window is used to input necessary retrieval information. For example, for retrieving an image with an object of the man shown in Fig. 3 as a reference, "left," "tall," "male," and "standing" are input as shown in Fig. 4.

Control is then passed to step S305. The input
25 retrieval-related query is stored in the RAM 13. At the

next step S306, retrieval is performed with reference to the input retrieval-related query and image management information (object units). At step S307, candidate images extracted through retrieval are displayed on the display 17.

5 This procedure is then exited.

In this retrieval, retrieval information concerning one object is input. Alternatively, information concerning a plurality of objects may be input simultaneously. In this case, the steps S302, 303, and 304 are repeated for each
10 object.

As mentioned above, according to the present embodiment, the adoption of object units makes it possible to clarify the kinds of objects an image includes and how the image is composed. The object unit consists of a place division, an
15 attribute pointer division, an object name division, a proper noun division, and a unit pointer division. The position of an object in a screen is specified in the place division. A pointer indicating a qualification unit is specified in the attribute pointer division. A general name
20 is specified in the object name division. A proper noun is specified in the proper noun division. Pointers indicating other object units are specified in the unit pointer division. For retrieval, retrieval information can be input as if a speech was made. A candidate image desired by a
25 retriever can be retrieved with a high probability.

Moreover, information to be specified in an object unit can be input easily by inputting object unit information and/or relationship unit information. The object unit information relates to information concerning an object. Furthermore,
5 retrieval information can be input easily.

The present embodiment relates to one apparatus. Alternatively, the present invention may be applied to a system consisting of a plurality of equipment (for example, a host computer, interface equipment, a reader, a printer,
10 etc.).

Moreover, a working mode described below is included in the scope of the present invention. Namely, a computer (CPU or MPU) included in an apparatus or a system is connected to various devices so that the various devices can be operated
15 in order to realize the aforesaid constituent features of the embodiment. Coded software programs for realizing the constituent features of the embodiment are supplied to the computer included in the system or apparatus. The computer included in the system or apparatus instructs the various
20 devices to operate according to the programs.

In the working mode, the coded software programs realize the constituent features of the embodiment. The programs themselves and a means for supplying the programs to the computer, for example, a storage medium in which the
25 programs are stored, constitute the present invention.

The storage medium in which the programs are stored may be, for example, a floppy disk, a hard disk, an optical disk, a magneto-optical disk, a CD-ROM, a magnetic tape, a nonvolatile memory card, or a ROM, for example.

5 In the foregoing mode, when the computer runs any of the supplied programs, the associated constituent feature of the embodiment is realized. In another mode, when a coded program cooperates with an operating system (OS) residing in a computer or with another application program software, the
10 associated constituent feature of the embodiment is realized. Even this mode is included in the scope of the present embodiment.

In still another mode, a supplied coded program is stored in a memory included in an extension board of the
15 computer or an extension unit connected to the computer. Thereafter, a CPU or the like included in the extension board or extension unit carries out a part or the whole of actual processing according to instructions described in the program. The associated constituent feature of the
20 aforesaid embodiment is realized through the processing. Even this mode is included in the scope of the present invention.

As described so far, according to the present invention, an image managing apparatus includes input means and
25 managing means. The input means inputs information to be

specified in an object unit assigned to each object contained in an image. The object unit consists of unit divisions in which such information as a general name, a qualifier, a proper noun, and a position are specified. The managing means stores the object unit having input information specified therein in an object unit memory means, and manages images stored in memory means in association with object units stored in the object unit memory means. This results in an improved retrieving ability.

According to the present invention, the input means of the image managing apparatus includes display means, position designating means, and input window display means. The display means displays an image. The position designating means designates the position of an object concerned in the displayed image. The input window display means displays an object unit input window, which is used to input information to be specified in an object unit, at the designated position. Consequently, information to be specified in an object unit for managing an image can be input easily.

According to the present invention, the managing means of the image managing apparatus includes retrieval information input means and retrieving means. The retrieval information input means inputs retrieval information corresponding to information specified in object units. The

retrieving means retrieves candidate images conformable to the retrieval information from the memory means according to the retrieval information and the information specified in the object units.

5 According to the present invention, an image managing apparatus includes input means and managing means. The input means inputs information concerning each object appearing in an image. The managing means stores the input information in a management information memory means and
10 manages information stored in the management information memory means in association with images. The input means includes display means, position designating means, and input window display means. The display means displays an image. The position designating means designates the
15 position of an object of interest in the displayed image. The input window display means displays an information input window used to input information concerning an object at the designated position. Information used to manage an image can therefore be input easily.

20 According to the present invention, an image retrieving apparatus includes retrieval information input means for inputting retrieval information and extracting means for extracting candidate images from an image memory according to the retrieval information. The input means includes
25 display means, position designating means, retrieval

information input window display means, and retrieval
information acquiring means. The display means displays a
virtual window virtually defining an image area. The
position designating means designates a position in the
5 displayed virtual window. The retrieval information input
window display means displays a retrieval information input
window used to input information concerning the retrieval
information at the designated position. The retrieval
information acquiring means acquires position information of
10 the designated position in the virtual window and the
information entered in the retrieval information input
window as retrieval information. The retrieval information
used to retrieve an image can therefore be input easily.

WHAT IS CLAIMED IS:

1. An image managing apparatus for managing retrievable images, comprising:

input means for inputting relevant information concerning each object in an image; and

memory means for storing the relevant information input by said input means in association with respective objects.

2. An image managing apparatus according to claim 1, wherein the relevant information includes at least one of a general name of an object, a qualifier therefor, a proper noun thereof, and a position thereof.

3. An image managing apparatus according to claim 1, wherein the relevant information includes information expressing a state of an object in an image.

4. An image managing apparatus according to claim 1, wherein the relevant information is relationship information expressing a relationship between one object in an image and another object in the image.

5. An image managing apparatus according to claim 2, wherein a plurality of words can be specified as the

qualifier.

6. An image managing apparatus according to claim 1, wherein said input means includes position designating means for designating a position of an object of interest in an image displayed on a display screen, and display means for displaying an input window used to input relevant information at the designated position.

7. An image managing apparatus according to claim 6, wherein the position designating means designates positions of two mutually-related objects in an image.

8. An image managing apparatus according to claim 1, further comprising retrieval requirement input means for inputting requirements for retrieval, and image retrieving means for retrieving images that meet the requirements for retrieval input by said retrieval requirement input means.

9. An image managing apparatus according to claim 1, wherein said input means inputs supplementary information including at least one of imaging-related information of an image, special object information thereof, category information thereof, impression information thereof, time information thereof, place information thereof, weather

information thereof, and event information thereof.

10. An image retrieving apparatus for retrieving images, comprising:

memory means for storing objects contained in images in association with relevant information concerning the objects;

retrieval requirement input means for inputting requirements for retrieval; and

retrieving means for retrieving images that meet the requirements for retrieval input by said retrieval requirement input means based on the relevant information stored in said memory means.

11. An image retrieving apparatus according to claim 10, wherein the relevant information includes at least one of a general name of an object, a qualifier therefor, a proper noun thereof, and a position thereof.

12. An image retrieving apparatus according to claim 10, wherein the relevant information includes information expressing a state of an object in an image.

13. An image retrieving apparatus according to claim 10, wherein the relevant information is relationship

information expressing a relationship between one object in an image and another object in the image.

14. An image retrieving apparatus according to claim 11, wherein a plurality of words can be specified as the qualifier.

15. An image retrieving apparatus according to claim 10, further comprising a position designating means for designating a position of an object of interest in an image displayed on a display screen, and display means for displaying an input window used to input relevant information at the designated position.

16. An image retrieving apparatus according to claim 15, wherein said position designating means designates positions of two mutually-related objects in an image.

17. An image retrieving apparatus according to claim 10, wherein said input means inputs supplementary information including at least one of imaging-related information of an image, special object information thereof, category information thereof, impression information thereof, time information thereof, place information thereof, weather information thereof, and event information thereof.

18. An image managing method for managing retrievable images, comprising:

an input step of inputting relevant information concerning each object in an image; and

a storage step of storing the relevant information input in said input step in association with respective objects.

19. An image managing method according to claim 18, wherein the relevant information includes at least one of a general name of an object, a qualifier therefor, a proper noun thereof, and a position thereof.

20. An image managing method according to claim 18, wherein the relevant information includes information expressing a state of an object in an image.

21. An image managing method according to claim 18, wherein the relevant information is relationship information expressing a relationship between one object in an image and another object in the image.

22. An image managing method according to claim 19, wherein a plurality of words can be specified as the

qualifier.

23. An image managing method according to claim 18, wherein said input step includes a position designation step of designating a position of an object of interest in an image displayed on a display screen, and a display step of displaying an input window used to input relevant information at the designated position.

24. An image managing method according to claim 23, wherein, in the position designation step, positions of two mutually-related objects are designated in an image.

25. An image managing method according to claim 18, further comprising a retrieval requirement input step of inputting requirements for retrieval, and an image retrieval step of retrieving images that meet the requirements for retrieval input in said retrieval requirement input step.

26. An image managing method according to claim 18, wherein, in said input step, supplementary information including at least one of imaging-related information of an image, special object information thereof, category information thereof, impression information thereof, time information thereof, place information thereof, weather

information thereof, and event information thereof is input.

27. An image retrieving method for retrieving images, comprising:

a storage step of storing objects contained in images in association with relevant information concerning the objects;

a retrieval requirement input step of inputting requirements for retrieval; and

a retrieval step of retrieving images that meet the requirements for retrieval input in said retrieval requirement input step based on the stored relevant information.

28. An image managing method according to claim 27, wherein the relevant information includes at least one of a general name of an object, a qualifier therefor, a proper noun thereof, and a position thereof.

29. An image managing method according to claim 27, wherein the relevant information includes information expressing a state of an object in an image.

30. An image managing method according to claim 27, wherein the relevant information is relationship information

expressing a relationship between one object in an image and another object in the image.

31. An image managing method according to claim 28, wherein a plurality of words can be specified as the qualifier.

32. An image managing method according to claim 27, further comprising a position designation step of designating a position of an object of interest in an image displayed on a display screen, and a display step of displaying an input window used to input relevant information at the designated position.

33. An image managing method according to claim 32, wherein, in said position designation step, positions of two mutually-related objects are designated in an image.

34. An image managing method according to claim 27, wherein, in said storage step, supplementary information including at least one of imaging-related information of an image, special object information thereof, category information thereof, impression information thereof, time information thereof, place information thereof, weather information thereof, and event information thereof is stored.

35. A storage medium in which is stored a program for implementing an image managing method for managing retrievable stored images, the program comprising:

program coded for an input step of inputting relevant information concerning each object in an image; and

program coded for a storage step of storing the relevant information input in the input step in association with respective objects stored in said storage medium.

36. A storage medium according to claim 35, wherein the relevant information includes at least one of a general name of an object, a qualifier therefor, a proper noun thereof, and a position thereof.

37. A storage medium according to claim 35, wherein the relevant information includes information expressing a state of an object in an image.

38. A storage medium according to claim 35, wherein the relevant information is relationship information expressing a relationship between one object in an image and another object in the image.

39. A storage medium according to claim 36, wherein a

plurality of words can be specified as the qualifier.

40. A storage medium according to claim 35, wherein said program coded for the input step includes program coded for a position designation step of designating a position of an object of interest in an image displayed on a display screen, and program coded for a display step of displaying an input window used to input relevant information at the designated position.

41. A storage medium according to claim 40, wherein, in the position designation step, positions of two mutually-related objects are designated in an image.

42. A storage medium according to claim 35, wherein the program further comprises program coded for a retrieval requirement input step of inputting requirements for retrieval, and program coded for an image retrieval step of retrieving images that meet the requirements for retrieval input in the retrieval requirement input step.

43. A storage medium according to claim 35, wherein, in the input step, supplementary information including at least one of imaging-related information of an image, special object information thereof, category information

thereof, impression information thereof, time information thereof, place information thereof, weather information thereof, and event information thereof is input.

44. A storage medium in which is stored a program for implementing an image retrieving method for retrieving stored images, the program comprising:

program coded for a storage step of storing objects contained in images in association with relevant information concerning the objects;

program coded for a retrieval requirement input step of inputting requirements for retrieval; and

program coded for a retrieval step of retrieving images that meet the requirements for retrieval input at the retrieval requirement input step based on the stored relevant information stored in said storage medium.

45. A storage medium according to claim 44, wherein the relevant information includes at least one of a general name of an object, a qualifier therefor, a proper noun thereof, and a position thereof.

46. A storage medium according to claim 44, wherein the relevant information includes information expressing a state of an object in an image.

47. A storage medium according to claim 44, wherein the relevant information is relationship information expressing a relationship between one object in an image and another object in the image.

48. A storage medium according to claim 45, wherein a plurality of words can be specified as the qualifier.

49. A storage medium according to claim 44, wherein the program further comprises program coded for a position designation step of designating a position of an object of interest in an image displayed on a display screen, and program coded for a display step of displaying an input window used to input relevant information at the designated position.

50. A storage medium according to claim 49, wherein, in the position designation step, positions of two mutually-related objects are designated in an image.

51. A storage medium according to claim 44, wherein, in the storage step, supplementary information including at least one of imaging-related information of an image, special object information thereof, category information

thereof, impression information thereof, time information thereof, place information thereof, weather information thereof, and event information thereof is stored.

11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000
1001
1002
1003
1004
1005
1006
1007
1008
1009
1010
1011
1012
1013
1014
1015
1016
1017
1018
1019
1020
1021
1022
1023
1024
1025
1026
1027
1028
1029
1030
1031
1032
1033
1034
1035
1036
1037
1038
1039
1040
1041
1042
1043
1044
1045
1046
1047
1048
1049
1050
1051
1052
1053
1054
1055
1056
1057
1058
1059
1060
1061
1062
1063
1064
1065
1066
1067
1068
1069
1070
1071
1072
1073
1074
1075
1076
1077
1078
1079
1080
1081
1082
1083
1084
1085
1086
1087
1088
1089
1090
1091
1092
1093
1094
1095
1096
1097
1098
1099
1100
1101
1102
1103
1104
1105
1106
1107
1108
1109
1110
1111
1112
1113
1114
1115
1116
1117
1118
1119
1120
1121
1122
1123
1124
1125
1126
1127
1128
1129
1130
1131
1132
1133
1134
1135
1136
1137
1138
1139
1140
1141
1142
1143
1144
1145
1146
1147
1148
1149
1150
1151
1152
1153
1154
1155
1156
1157
1158
1159
1160
1161
1162
1163
1164
1165
1166
1167
1168
1169
1170
1171
1172
1173
1174
1175
1176
1177
1178
1179
1180
1181
1182
1183
1184
1185
1186
1187
1188
1189
1190
1191
1192
1193
1194
1195
1196
1197
1198
1199
1200
1201
1202
1203
1204
1205
1206
1207
1208
1209
1210
1211
1212
1213
1214
1215
1216
1217
1218
1219
1220
1221
1222
1223
1224
1225
1226
1227
1228
1229
1230
1231
1232
1233
1234
1235
1236
1237
1238
1239
1240
1241
1242
1243
1244
1245
1246
1247
1248
1249
1250
1251
1252
1253
1254
1255
1256
1257
1258
1259
1260
1261
1262
1263
1264
1265
1266
1267
1268
1269
1270
1271
1272
1273
1274
1275
1276
1277
1278
1279
1280
1281
1282
1283
1284
1285
1286
1287
1288
1289
1290
1291
1292
1293
1294
1295
1296
1297
1298
1299
1300
1301
1302
1303
1304
1305
1306
1307
1308
1309
1310
1311
1312
1313
1314
1315
1316
1317
1318
1319
1320
1321
1322
1323
1324
1325
1326
1327
1328
1329
1330
1331
1332
1333
1334
1335
1336
1337
1338
1339
1340
1341
1342
1343
1344
1345
1346
1347
1348
1349
1350
1351
1352
1353
1354
1355
1356
1357
1358
1359
1360
1361
1362
1363
1364
1365
1366
1367
1368
1369
1370
1371
1372
1373
1374
1375
1376
1377
1378
1379
1380
1381
1382
1383
1384
1385
1386
1387
1388
1389
1390
1391
1392
1393
1394
1395
1396
1397
1398
1399
1400
1401
1402
1403
1404
1405
1406
1407
1408
1409
1410
1411
1412
1413
1414
1415
1416
1417
1418
1419
1420
1421
1422
1423
1424
1425
1426
1427
1428
1429
1430
1431
1432
1433
1434
1435
1436
1437
1438
1439
1440
1441
1442
1443
1444
1445
1446
1447
1448
1449
1450
1451
1452
1453
1454
1455
1456
1457
1458
1459
1460
1461
1462
1463
1464
1465
1466
1467
1468
1469
1470
1471
1472
1473
1474
1475
1476
1477
1478
1479
1480
1481
1482
1483
1484
1485
1486
1487
1488
1489
1490
1491
1492
1493
1494
1495
1496
1497
1498
1499
1500
1501
1502
1503
1504
1505
1506
1507
1508
1509
1510
1511
1512
1513
1514
1515
1516
1517
1518
1519
1520
1521
1522
1523
1524
1525
1526
1527
1528
1529
1530
1531
1532
1533
1534
1535
1536
1537
1538
1539
1540
1541
1542
1543
1544
1545
1546
1547
1548
1549
1550
1551
1552
1553
1554
1555
1556
1557
1558
1559
1560
1561
1562
1563
1564
1565
1566
1567
1568
1569
1570
1571
1572
1573
1574
1575
1576
1577
1578
1579
1580
1581
1582
1583
1584
1585
1586
1587
1588
1589
1590
1591
1592
1593
1594
1595
1596
1597
1598
1599
1600
1601
1602
1603
1604
1605
1606
1607
1608
1609
1610
1611
1612
1613
1614
1615
1616
1617
1618
1619
1620
1621
1622
1623
1624
1625
1626
1627
1628
1629
1630
1631
1632
1633
1634
1635
1636
1637
1638
1639
1640
1641
1642
1643
1644
1645
1646
1647
1648
1649
1650
1651
1652
1653
1654
1655
1656
1657
1658
1659
1660
1661
1662
1663
1664
1665
1666
1667
1668
1669
1670
1671
1672
1673
1674
1675
1676
1677
1678
1679
1680
1681
1682
1683
1684
1685
1686
1687
1688
1689
1690
1691
1692
1693
1694
1695
1696
1697
1698
1699
1700
1701
1702
1703
1704
1705
1706
1707
1708
1709
1710
1711
1712
1713
1714
1715
1716
1717
1718
1719
1720
1721
1722
1723
1724
1725
1726
1727
1728
1729
1730
1731
1732
1733
1734
1735
1736
1737
1738
1739
1740
1741
1742
1743
1744
1745
1746
1747
1748
1749
1750
1751
1752
1753
1754
1755
1756
1757
1758
1759
1760
1761
1762
1763
1764
1765
1766
1767
1768
1769
1770
1771
1772
1773
1774
1775
1776
1777
1778
1779
1780
1781
1782
1783
1784
1785
1786
1787
1788
1789
1790
1791
1792
1793
1794
1795
1796
1797
1798
1799
1800
1801
1802
1803
1804
1805
1806
1807
1808
1809
1810
1811
1812
1813
1814
1815
1816
1817
1818
1819
1820
1821
1822
1823
1824
1825
1826
1827
1828
1829
1830
1831
1832
1833
1834
1835
1836
1837
1838
1839
1840
1841
1842
1843
1844
1845
1846
1847
1848
1849
1850
1851
1852
1853
1854
1855
1856
1857
1858
1859
1860
1861
1862
1863
1864
1865
1866
1867
1868
1869
1870
1871
1872
1873
1874
1875
1876
1877
1878
1879
1880
1881
1882
1883
1884
1885
1886
1887
1888
1889
1890
1891
1892
1893
1894
1895
1896
1897
1898
1899
1900
1901
1902
1903
1904
1905
1906
1907
1908
1909
1910
1911
1912
1913
1914
1915
1916
1917
1918
1919
1920
1921
1922
1923
1924
1925
1926
1927
1928
1929
1930
1931
1932
1933
1934
1935
1936
1937
1938
1939
1940
1941
1942
1943
1944
1945
1946
1947
1948
1949
1950
1951
1952
1953
1954
1955
1956
1957
1958
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038
2039
2040
2041
2042
2043
2044
2045
2046
2047
2048
2049
2050
2051
2052
2053
2054
2055
2056
2057
2058
2059
2060
2061
2062
2063
2064
2065
2066
2067
2068
2069
2070
2071
2072
2073
2074
2075
2076
2077
2078
2079
2080
2081
2082
2083
2084
2085
2086
2087
2088
2089
2090
2091
2092
2093
2094
2095
2096
2097
2098
2099
2100
2101
2102
2103
2104
2105
2106
2107
2108
2109
2110
2111
2112
2113
2114
2115
2116
2117
2118
2119
2120
2121
2122
2123
2124
2125
2126
2127
2128
2129
2130
2131
2132
2133
2134
2135
2136
2137
2138
2139
2140
2141
2142
2143
2144
2145
2146
2147
2148
2149
2150
2151
2152
2153
2154
2155
2156
2157
2158
2159
2160
2161
2162
2163
2164
2165
2166
2167
2168
2169
2170
2171
2172
2173
2174
2175
2176
2177
2178
2179
2180
2181
2182
2183
2184
2185
2186
2187
2188
2189
2190
2191
2192
2193
2194
2195
2196
2197
2198
2199
2200
2201
2202
2203
2204
2205
2206
2207
2208
2209
2210
2211
2212
2213
2214
2215
2216
2217
2218
2219
2220
2221
2222
2223
2224
2225
2226
2227
2228
2229
2230
2231
2232
2233
2

ABSTRACT OF THE DISCLOSURE

The present invention provides an image managing apparatus offering an improved retrieving ability. The image managing apparatus manages images stored in a hard disk drive in association with image management information. The image management information includes information specified in object units assigned to objects contained in an image. An object unit consists of divisions in which the position of an object in a screen, a pointer indicating a qualification unit, a general name of the object, a proper noun thereof, and pointers indicating other object units are specified respectively. The pointer indicating a qualification unit indicates a position at which the qualification unit resides. Qualifiers appended to the object are specified in the qualification unit. The pointers indicating other object units indicate other linked object units. The other object units include an internal relationship unit, a state unit, and a relationship unit.

FIG. 1

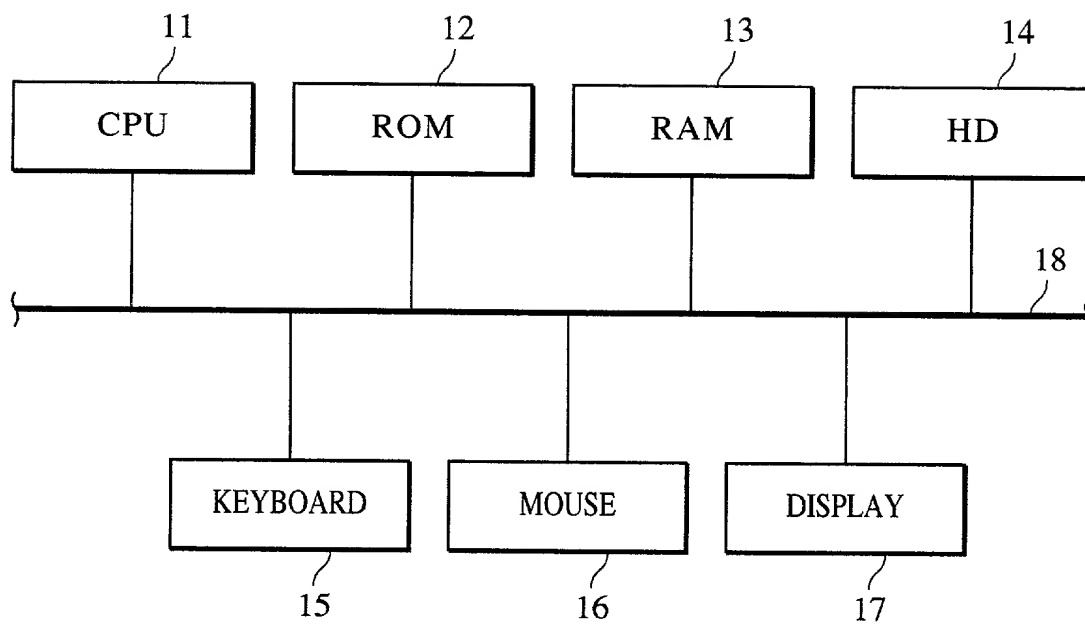


FIG. 2A

OBJECT UNIT 20

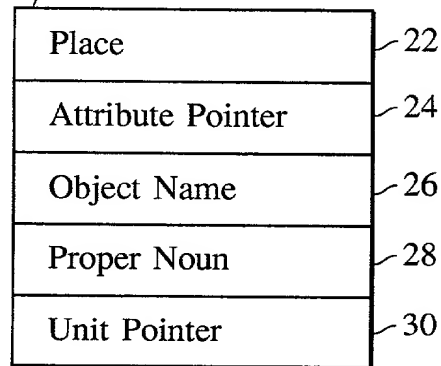


FIG. 2B

QUALIFICATION UNIT 32

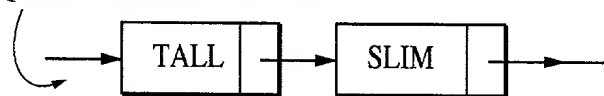


FIG. 2C

INTERNAL RELATIONSHIP UNIT 34

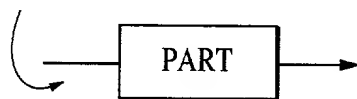


FIG. 2D

STATE UNIT 36

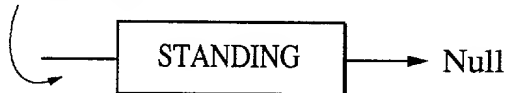


FIG. 2E

RELATIONSHIP UNIT 38



FIG. 3

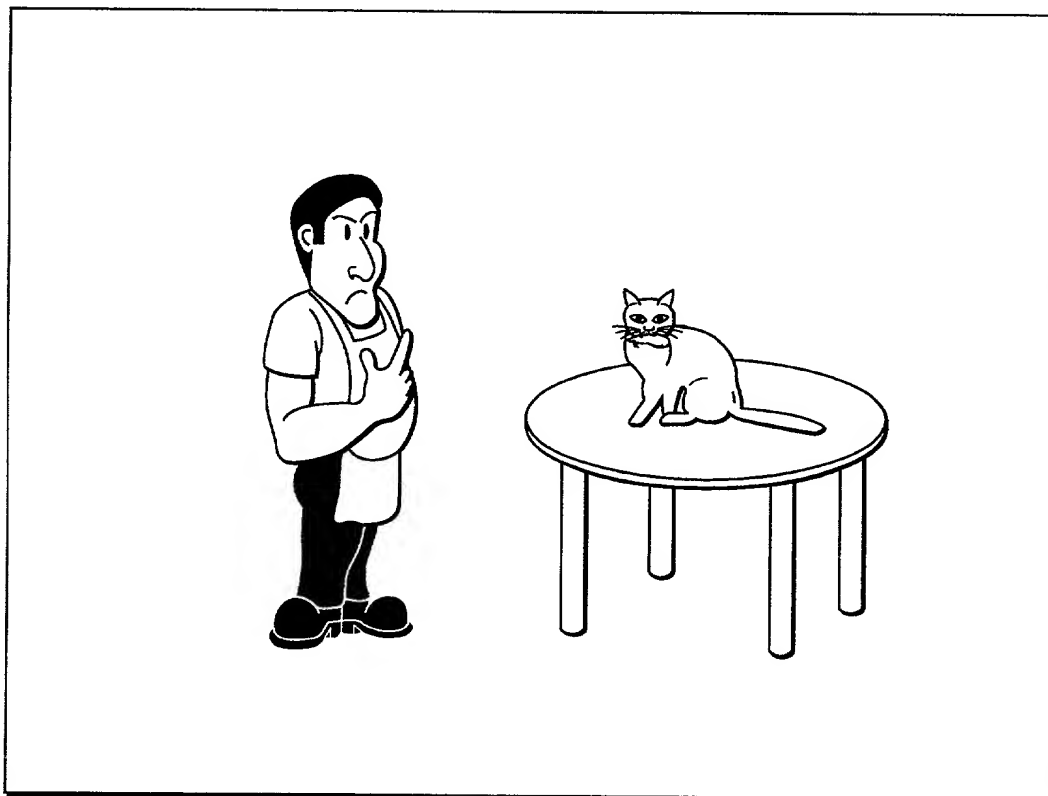


FIG. 3

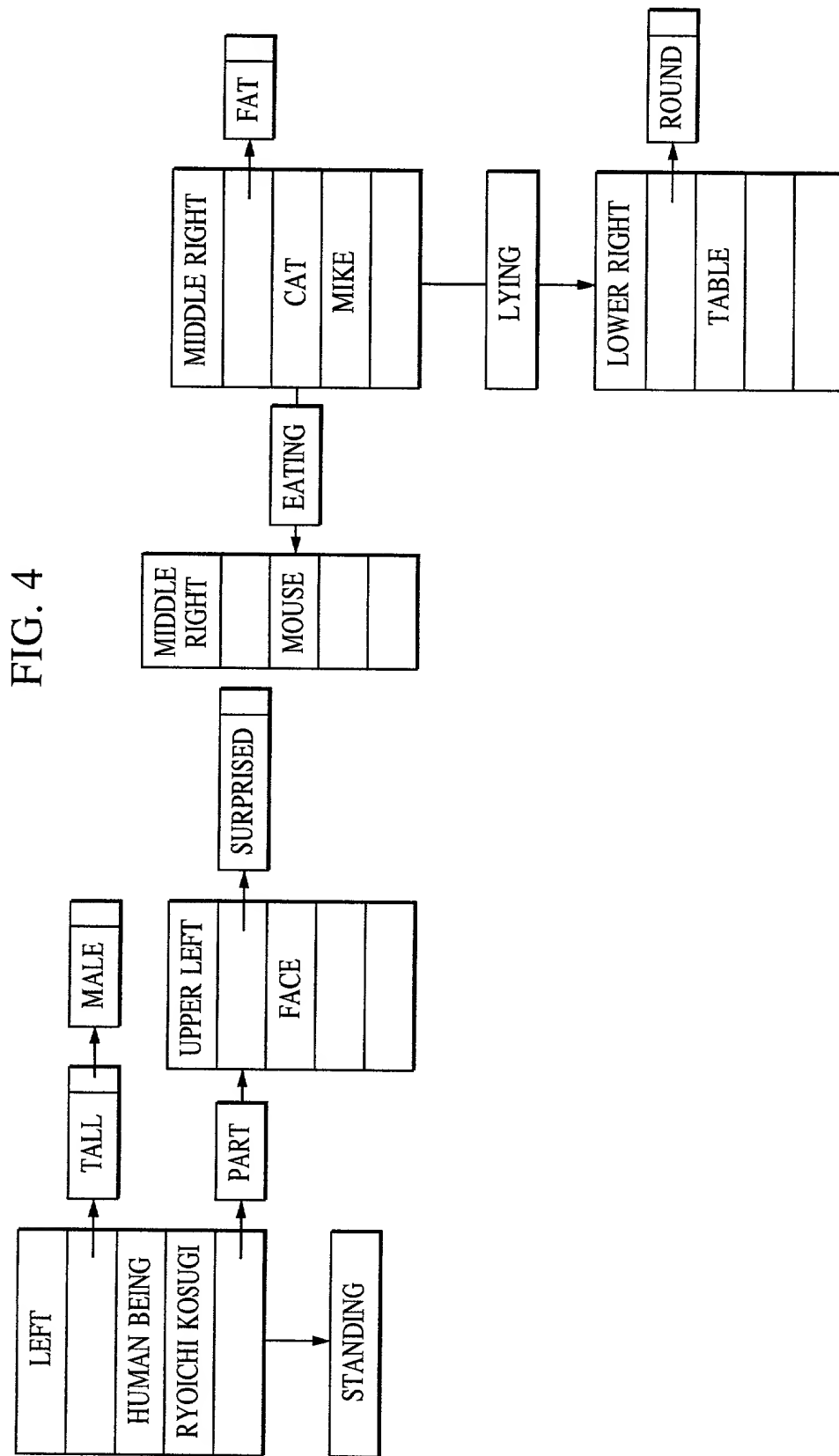


FIG. 4

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

FIG. 5

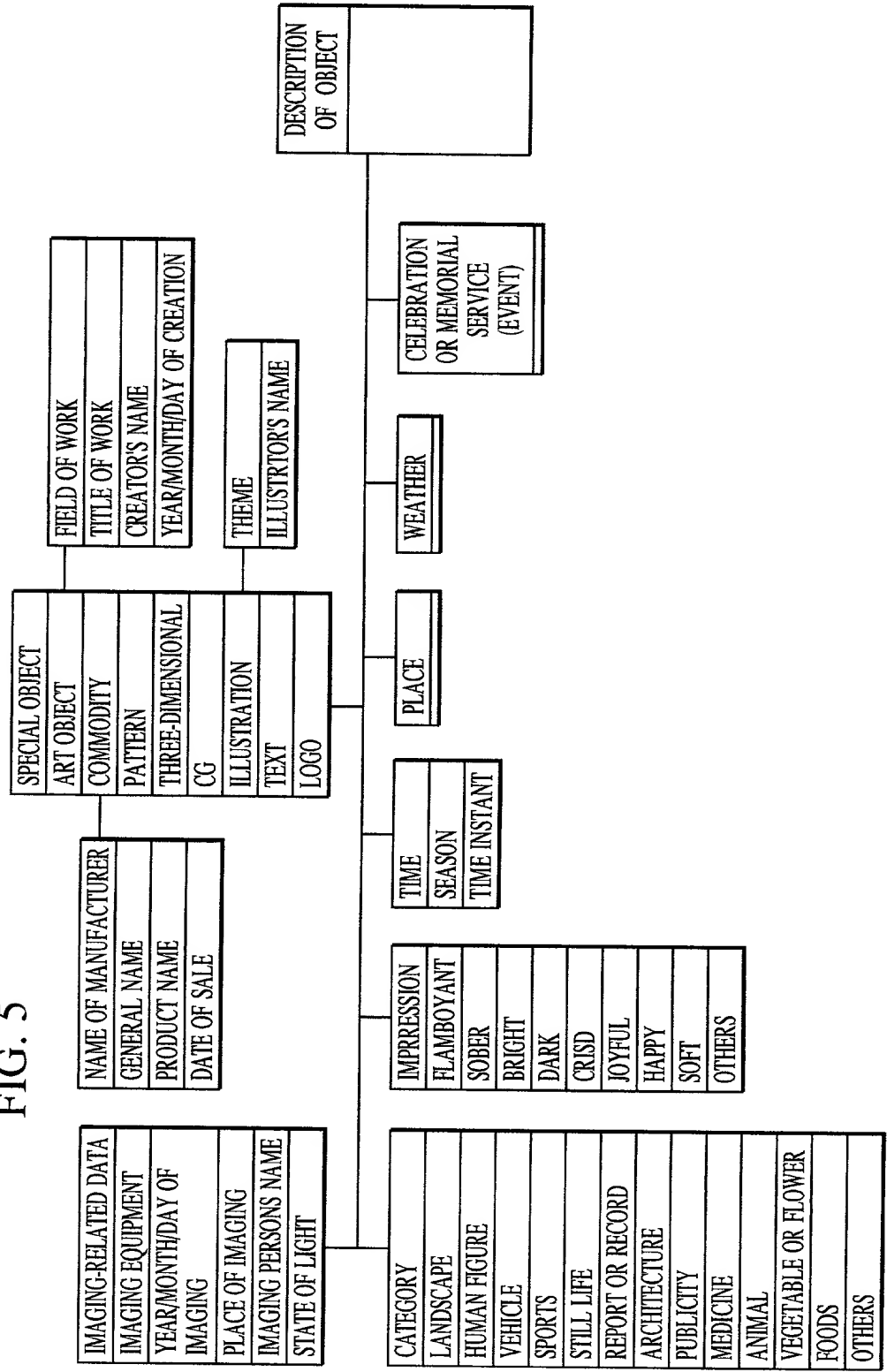


FIG. 6

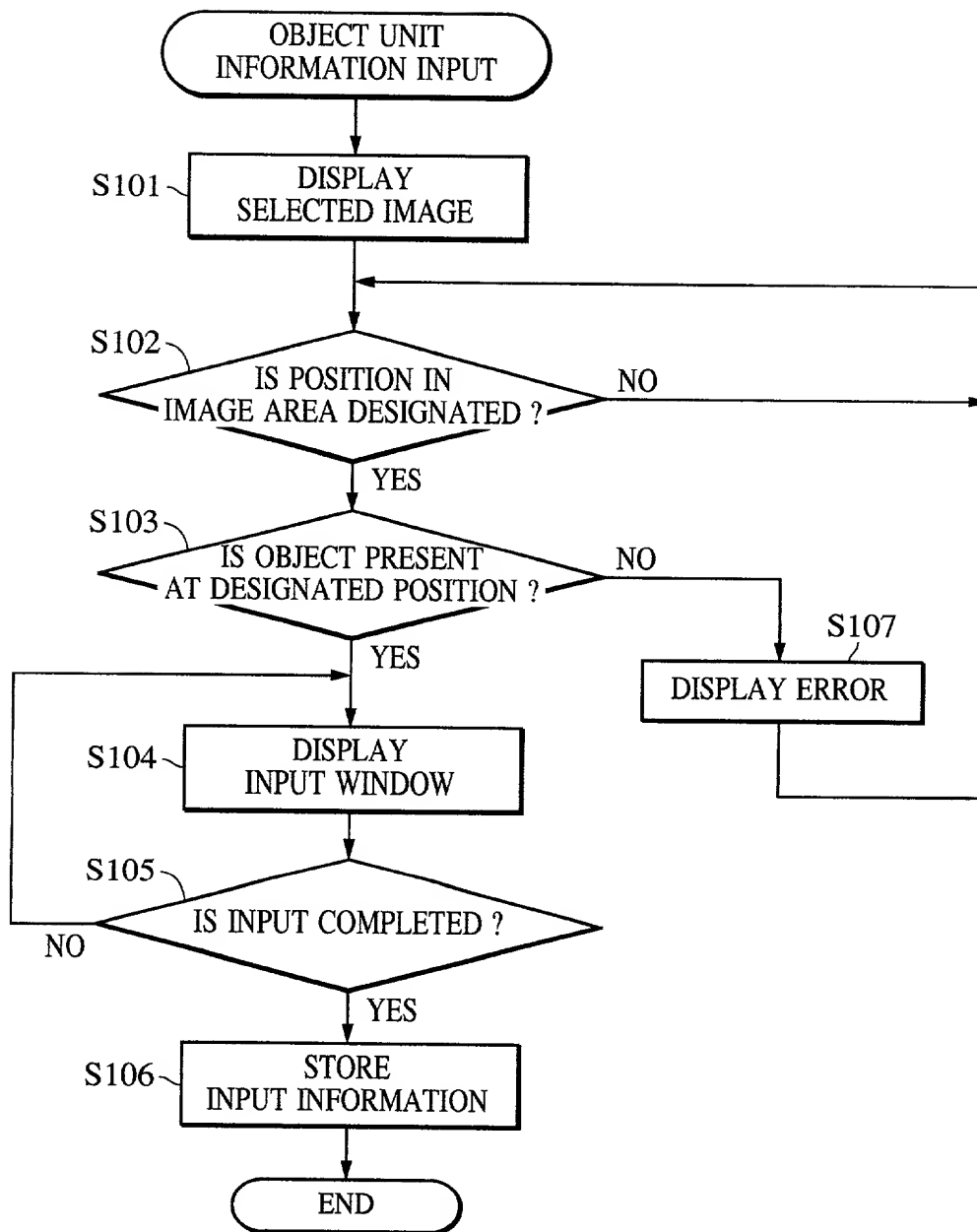


FIG. 7

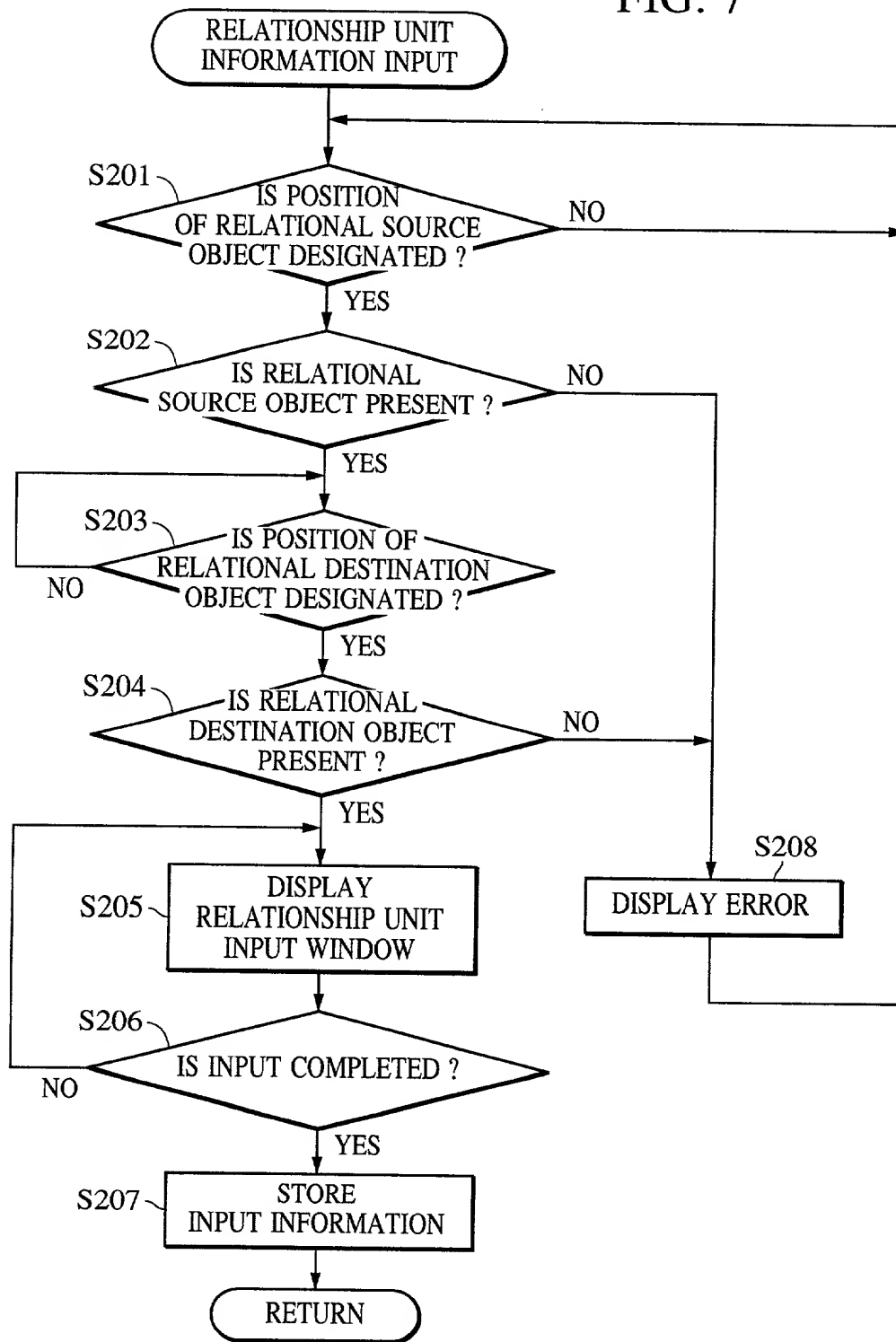
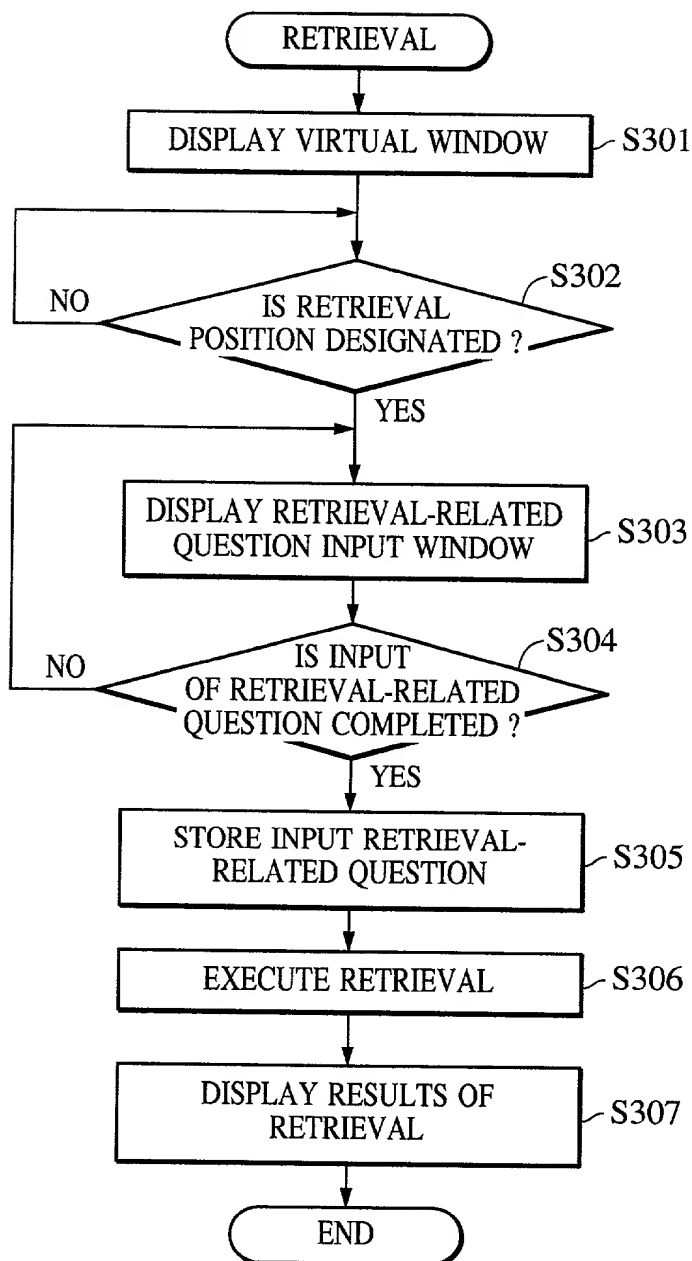


FIG. 8



COMBINED DECLARATION AND POWER OF ATTORNEY
FOR PATENT APPLICATION

(Page 1)

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

IMAGE MANAGING APPARATUS, IMAGE RETRIEVING APPARATUS, IMAGE
MANAGING METHOD, IMAGE RETRIEVING METHOD, AND STORAGE MEDIUM

the specification of which ☒ is attached hereto ☐ was filed on _____ as United States
Application No. or PCT International Application No. _____
and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR §1.56

I hereby claim foreign priority benefits under 35 U.S.C. §119(a)-(d) or §365(b), of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT international application which designates at least one country other than the United States, listed below and have also identified below any foreign application for patent or inventor's certificate, or PCT international application having a filing date before that of the application on which priority is claimed:

| Country | Application No. | Filed (Day/Mo./Yr.) | (Yes/No)
Priority Claimed |
|---------|-----------------|---------------------|------------------------------|
| Japan | 375479/1998 | December 16, 1998 | Yes |
| Japan | 375480/1998 | December 16, 1998 | Yes |

I hereby claim the benefit under 35 U.S.C. §120 of any United States application(s), or §365(c) of any PCT international application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of 35 U.S.C. §112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

| Application No. | Filed (Day/Mo./Yr.) | Status (Patented, Pending, Abandoned) |
|-----------------|---------------------|---------------------------------------|
| N/A | | |

I hereby appoint the practitioners associated with the firm and Customer Number provided below to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith, and direct that all correspondence be addressed to the address associated with that Customer Number:

FITZPATRICK, CELLA, HARPER & SCINTO
Customer Number: 05514

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of Sole or First Inventor RYO FUJIMOTO

Inventor's signature _____

Date _____ Citizen/Subject of Japan

Residence 5-5-19, Shimouma, Setagaya-ku, Tokyo, Japan

Post Office Address c/o Canon Kabushiki Kaisha,

30-2, Shimomaruko 3-chome, Ohta-ku, Tokyo, Japan

COMBINED DECLARATION AND POWER OF ATTORNEY
FOR PATENT APPLICATION

(Page 2)

Full Name of Second Joint Inventor, if any TORU FUKUMOTO

Second Inventor's signature _____

Date _____ Citizen/Subject of Japan

Residence 4-20-3-101, Utsukushigaoka, Aoba-ku, Yokohama-shi,
Kanagawa-ken, Japan

Post Office Address c/o Canon Kabushiki Kaisha,
30-2, Shimomaruko 3-chome, Ohta-ku, Tokyo, Japan